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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,702	05/22/2006	Alan James Coulson	0074-535083	8160

110 7590 12/24/2009

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EXAMINER	
TSE, YOUNG TOI	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
12/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,702	COULSON, ALAN JAMES	
	Examiner	Art Unit	
	Young T. Tse	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 9-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-20* is/are rejected.

7)☒ Claim(s) *3-5,7,9 and 14-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 3-5, 7, 9, and 14-19 are objected to because of the following informalities:

Claims 3 and 4, line 2, "each of a" should be "each of the".

Claim 4, line 4, "a number of" should be "the number of".

Claim 5, line 2, "one digital" should be "at least one digital".

Claim 7 depends from the objected claim 5, therefore it is also objected.

Claim 9 (line 3) and claim 19 (line 2), "from the phase" should be "from the".

Claim 14, line 1, "claim 10" is suggested change to "claim 12" in order to overcome the antecedent basis of "the timer" later recited in the dependent claim 16.

Claim 15, line 1, "claim 12" is suggested change to "claim 14".

Claim 16 (line 3) and claim 19 (lines 3-4), "an OFDM packet" should be "the OFDM data packet".

Claims 17 and 18 are either directly or indirectly depended from the objected claim 16, therefore they are also rejected.

Claim 19, lines 1 and 3, "the current" and "an excision filter" should be "a current" and "the excision filter", respectively.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-7 and 9-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

According to the present invention, the specification discussed that Figure 2A is a block diagram of an interference suppression detector comprising a front end 31, a pilot detector 32, a narrowband interference detector 33, an excision filter 34, and an OFDM receiver 35.

Figure 2B shows flowchart indication the steps of one embodiment of the excision-based narrowband interference suppression technique of Figure 2A.

Figure 3 shows a baseband OFDM receiver including the interference suppression of the invention.

Claim 1 recites a method of suppressing narrowband interference in OPDM receivers comprising the steps of: acquiring samples of received data; estimating parameters of each of a number of narrowband interferers from the acquired samples of received data; forming an excision filter using the estimated parameters; and inserting the excision filter into an OFDM receiver. The claimed subject matter appears related to either Figure 2A or Figure 2B. However, as mentioned in the specification, Figure 2A is an interference suppression detector, and the output from the excision filter

34 is provided to the OFDM receiver 35. Therefore, claim 1 contains subject matter (at least in the preamble of the claim) was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 2-7 and 9 are either directly or indirectly depended from the rejected claim 1, therefore they are also rejected.

Claim 10 recites an OFDM receiver comprising: a front end arranged to receive data; a data sampler arranged to provide samples of the received data; a narrowband interference detector that detects narrowband interferers in the samples of the received data and estimates parameters of each narrowband interferer; and an excision filter that uses the estimated parameters of each narrowband interferer to reduce noise from the narrowband interferers wherein the excision filter is inserted in the OFDM receiver prior to a Fourier transform operator.

Claim 10 appears correspond to the OFDM receiver shown in Figure 3. However, the specification fails to discussed the relationship between Figure 2A/2B and Figure that how to apply the narrowband interference detector and the excision filter shown in Figure 2A into the OFDM receiver of Figure 3 as recited in claim 10 to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 11-20 are either directly or indirectly depended from the rejected claim 10, therefore they are also rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Young T. Tse whose telephone number is 571- 272-3051. The examiner can normally be reached on Monday-Friday 10:00-6:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on 571- 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Young T. Tse/
Primary Examiner, Art Unit 2611